

***Bilobella carpatica*, a new species of Neanurinae
(Collembola: Neanuridae) from the Carpathians**

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***Bilobella carpatica*, a new species of Neanurinae (Collembola: Neanuridae) from the Carpathians.** - A new species of the genus *Bilobella* Caroli, 1912 from the Ukrainian Carpathians is described, discussed and fully illustrated. *Bilobella carpatica* sp. n. is characterised by the presence of very small eyes, the absence of the chaeta O on head, the presence of 7 chaetae on tubercle (Di+De+DI) of abdomen V and the absence of inner denticle on claw. It is related to *B. subaurantiaca* Cassagnau et Péja, 1979 and *B. massoudi* Cassagnau, 1968 from Albania and former Yugoslavia respectively.

Keywords: Collembola - Paleonurini - taxonomy - Ukraine.

INTRODUCTION

The genus *Bilobella* was established by Caroli (1912), with *Neanura aurantiaca* Caroli, 1910 described from Italy, as its type species. At present, the genus is classified within Paleonurini, one of the six tribes erected in the subfamily Neanurinae (Cassagnau, 1989). The most distinguishing and striking characters of *Bilobella* are the absence of chaetae and tubercles Di on thoracic tergum I and chaetae A on head. As presently defined (Deharveng, 1982) the genus comprises 12 species, most of which were described and reported from Europe, especially from the Mediterranean part of the continent (Cassagnau, 1968; Cassagnau & Péja 1979; Deharveng, 1979, 1981; Jordana *et al.*, 1997). Morphologically, *Bilobella* strongly resembles *Adbiloba* Stach, 1951 (Europe, Africa, Asia) in several respects including the colour of body, the fusion of lateral tubercles (DI, L, So) on head, and tubercles Di, De and DI on abdominal tergum V.

During the research on the Collembola fauna of the Ukrainian Carpathians, the second author found an unknown species of the genus very similar to two European species, *B. subaurantiaca* Cassagnau et Péja, 1979 and *B. massoudi* Cassagnau, 1968 described from Albania and former Yugoslavia, respectively. In addition, the examination of Stach's material of "*Bilobella aurantiaca*" from different localities in Europe (Stach, 1951), made possible thanks to the kindness of Prof. Wanda M. Weiner from

the Institute of Systematics and Evolution of Animals PAS (Cracow, Poland), revealed two further specimens of the undescribed species. The present paper contains its description and taxonomic remarks. The holotype of *Bilobella carpatica* sp. n. is housed in the collection of Muséum d'histoire naturelle in Geneva.

TERMINOLOGY

Terminology in the description follows that given in Deharveng (1983), Deharveng & Weiner (1984) and Greenslade & Deharveng (1990).

Abbreviations used; General morphology: abd.—abdomen, ant.—antenna, Cx—coxa, Fe—femur, Scx2—subcoxa 2, T—tibiotarsus, th.—thorax, Tr—trochanter, VT—ventral tube; Groups of chaetae: Ag—antegenital, Fu—furcal, Ve—ventroexternal, Vi—ventrointernal, Vl—ventrolateral; Tubercles: Af—antenna—frontal, Cl—clypeal, De—dorsoexternal, Di—dorsointernal, Dl—dorsolateral, L—lateral, Oc—ocular, So—subocular; Types of chaetae: Ml—long macrochaeta, Mc—short macrochaeta, me—mesochaeta, mi—microchaeta, ms—s—microchaeta, S— or s—chaeta sensuality or sensillum, or—organite of antenna IV, i—ordinary chaeta on antenna IV, mou—thin cylindrical sensilla on ant. IV („soies mousses”), x—labial papilla x.

DESCRIPTION OF THE NEW SPECIES

Bilobella carpatica sp. n.

Figs 1-14

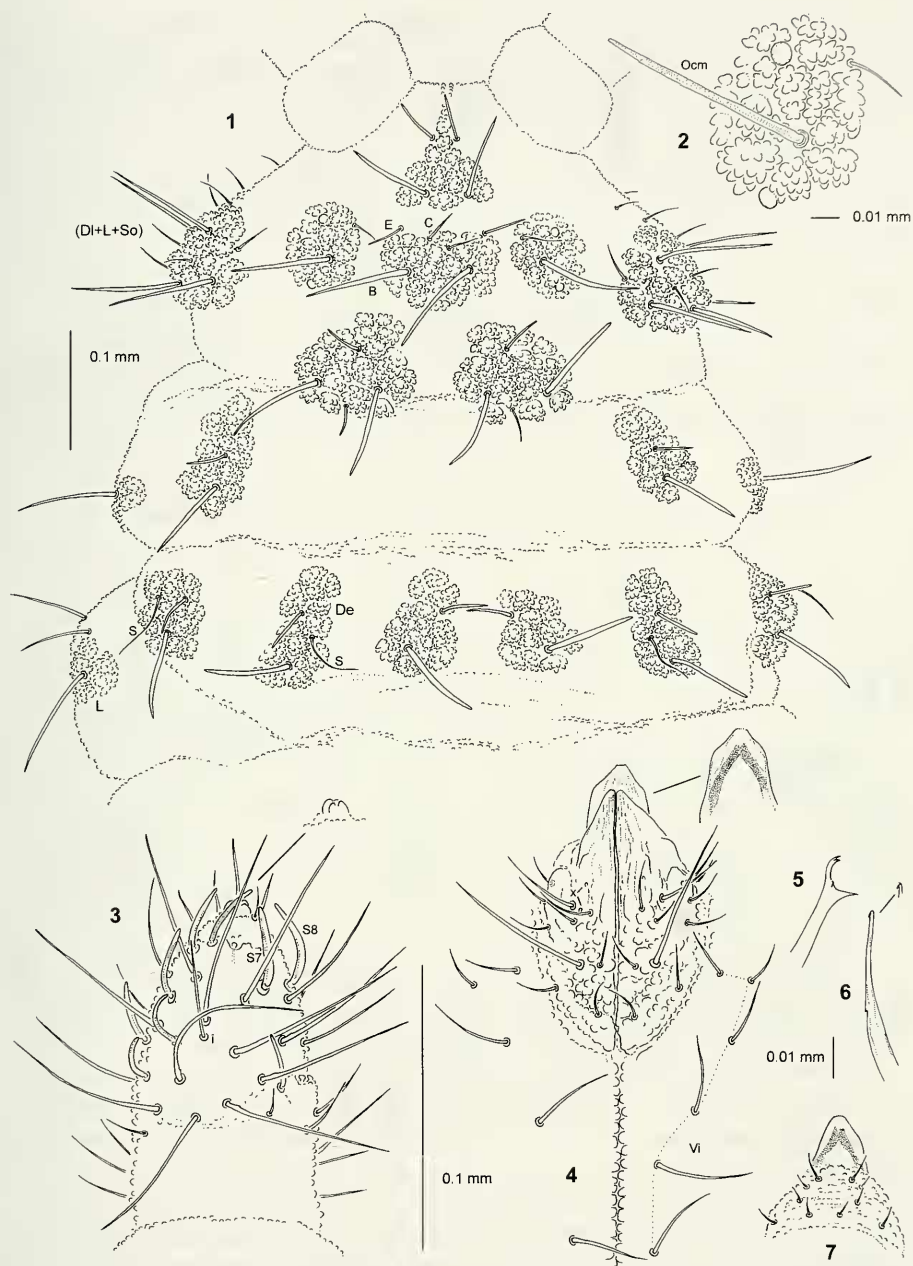
TYPE MATERIAL: Holotype, adult female on slide, Ukraine, East Carpathians, Gorgany Range, Maniava village, larch forest, litter, 23.V.1990, leg. I. Kaprus' (in the collection of the Muséum d'histoire naturelle in Geneva).

OTHER MATERIAL EXAMINED (no types): adult female on slide, Ukraine, East Carpathians, Chyvychny Range, village, spruce forest, litter, 14.VIII.1990, leg. I. Kaprus'; juvenile on slide, Ukraine, East Carpathians, Chornohora Range, Mt. Danchev, spruce forest, litter and soil, 24.VIII.1993, leg. I. Kaprus'; juvenile on slide, Ukraine, East Carpathians, Chyvychny Range, Velykyi Kamin' Mt, near Perkalab village, spruce forest, litter, 1.VIII.1991, leg. I. Kaprus'; male and juvenile on slides, Ukraine, East Carpathians, Chornohora Range, 1935, leg. J. Stach. The other material, except specimens from the Stach's collection (Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Cracow, Poland), is preserved at the Department of Biodiversity and Evolutionary Taxonomy, Wrocław University, Poland and the State Museum of Natural History, Ukrainian National Academy of Sciences, L'viv.

ETYMOLOGY: The new species is named after its terra typica, the Carpathians.

DIAGNOSIS: Among known species *Bilobella carpatica* sp. n. can be easily recognised by the following combination of characters: white body, very small eyes (diameter of ocellus equal or slightly larger than diameter of chaetopor Ocm), absence of chaetae O and D on head, presence of 4 chaetae on tubercle (Di+De) of head, presence of 3 chaetae on tubercle De of thoracic terga II–III, presence of 4 chaetae on tubercle (De+Dl) of abdominal tergum IV, presence of 7 chaetae on tubercle (Di+De+Dl) of abdominal tergum V and claws without denticle.

DESCRIPTION: Habitus typical of the genus *Bilobella*. Body length (without antennae) 0.80–1.60 mm (holotype–1.45 mm). Tertiary granulation well developed. Colour of the body white. 2+2 very small, unpigmented eyes (Figs 1, 2).



FIGS 1-7

Bilobella carpatica sp. n. (1) Dorsal chaetotaxy of head and th. I-II, holotype. (2) Tubercle Oc on head. (3) Dorsal chaetotaxy of ant. III-IV, right antenna. (4) Chaetotaxy of labium and group Vi. (5) Mandible. (6) Maxilla. (7) Labrum.

TABLE 1. Chaetotaxy of *Bilobella carpatica* sp. n.. Cephalic chaetotaxy

Tubercle	Number of chaetae	Types of chaetae	Names of chaetae
Cl	4	MI Mc	F G
Af	6	MI Mc	B C, E
Oc	2	MI Mc or me	Ocm Oca
(Di+De)	4	MI Mc	Di1, De1 Di2, De2
(DI+L+So)	11-12	MI, Mc, me	impossible to recognise

Number of other cephalic chaetae: Vi, 6; Ve, 7-9; labrum, 4/2, 4; labium, 11, 2x; ant. I, 7; ant. II, 11; ant. III, 16-17 + 5s; ant. IV, 8S + i + or + 12mou.

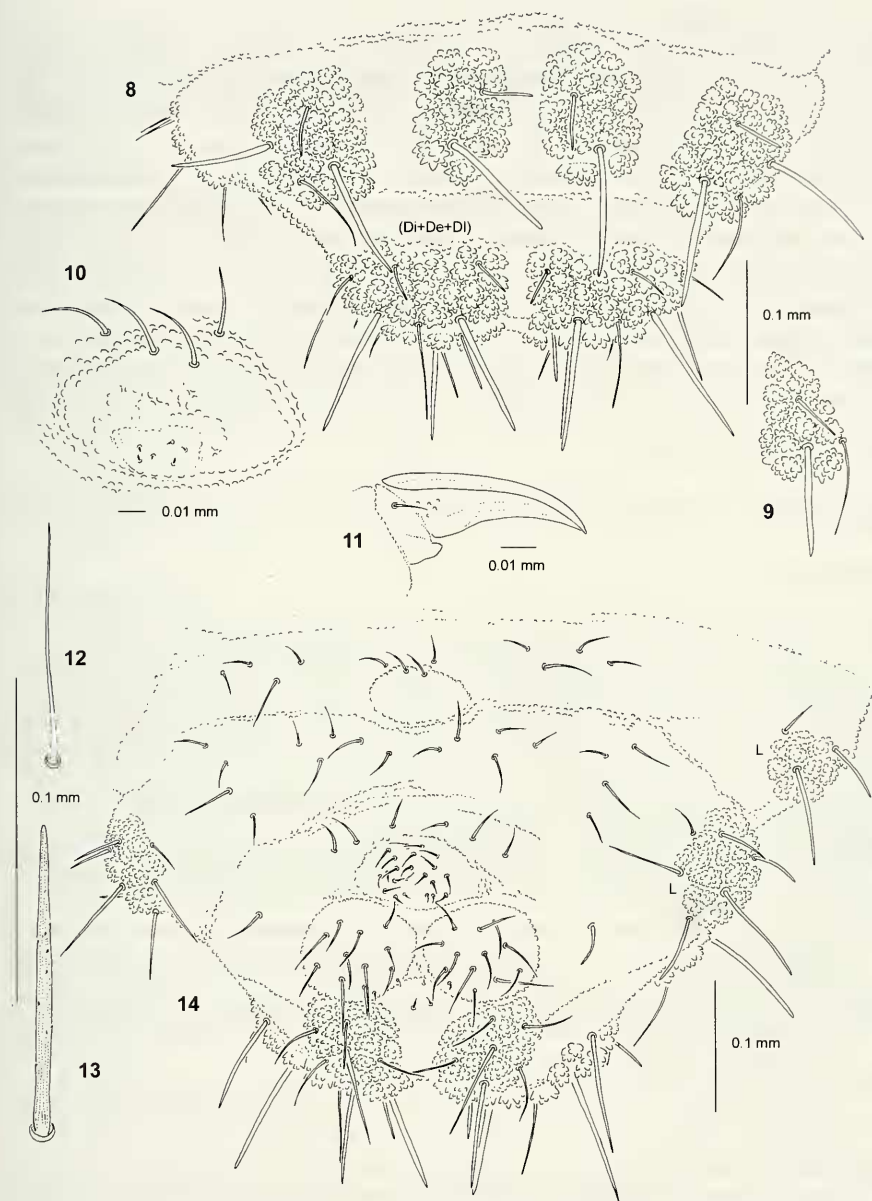
TABLE 2. Chaetotaxy of *Bilobella carpatica* sp. n.. Postcephalic chaetotaxy

	Di	Terga				Legs			
		De	DI	L	Scx2	Cx	Tr	Fe	T
th. I	—	2	1	—	0	3	6	13	19
th. II	2	2+s	2+s+ms	3	2	7	6	12	19
Th. III	2	2+s	2+s	3	2	8	6	11	18
Sterna									
Abd. I	2	2+s	2	3	VT: 4	Vel-absent			
abd. II	2	2+s	2	3	Ve: 4				
abd. III	2	2+s	2	3	Ve: 4				
abd. IV	2		3+s	6	Ve: 5			Fu:4 me	6 mi
abd. V			6+s		Ag: 3			VI: 4-5	
abd. VI			7		Ve:11-12			VI: 1	
								An:2-3 mi	

Types of dorsal ordinary chaetae: macrochaetae MI thickened, moderately long, narrowly sheathed, feebly serrated and apically arc-like (Figs 1-2, 8-9, 13); macrochaetae Mc with similar morphology, mesochaetae thin and pointed.

Head. Buccal cone slightly elongate. Ventral sclerifications of labrum as in Figs 4, 7. Labral chaetotaxy 4/2, 4 (Fig. 7). Chaetotaxy of labium as in Fig. 4 and Tab. 1. 2+2 small papillae x present. Maxilla styliiform (Fig. 6). Mandible thin with four teeth, middle tooth small and slightly curved (Fig. 5). Antennal segments I and II with 7 and 11 chaetae respectively. Antennal segments III and IV fused dorsally. Dorsal chaetotaxy of ant. III-IV as in Fig. 3 and Tab. 1. Apical bulb distinct, trilobed. S-chaetae long and moderately thickened, S7-8 distinctly longer than other sensilla (Fig. 3). Chaetotaxy of head as in Figs 1-2 and in Tab. 1. Chaetae O and D absent.

Thorax, abdomen, legs. Chaetotaxy of th. and abd. as in Figs 1, 8-10, 12-14, and in Tab. 2. Body sensilla apically not knobbed (Fig. 12). Tubercles De of th. II-III and abd. I-III with 3 chaetae (Figs 1, 9). Tubercles L on th. II-III with 3 chaetae (Fig. 1). Tubercles L on abd. III and IV with 3 and 6 chaetae (Fig. 14). 4 mesochaetae



FIGS 8-14

Bilobella carpatica sp. n. (8) Dorsal chaetotaxy of abd. IV-VI, holotype. (9) Tubercle De of abd. III. (10) Furca rudimentary. (11) Claw of legs III. (12) Body sensillum of abd. V. (13) Chaeta Di1 of abd. V. (14) Ventral chaetotaxy of abd. III-VI, holotype.

and 6 very small microchaetae on furca rudimentary (Fig. 10). Tubercle (Di+De+DI) on abd. V with 7 chaetae. Cryptopygy present, strongly developed (Fig. 8). Chaetotaxy of legs as in Tab. 2. M chaeta present. Claw without inner tooth (Fig. 11).

REMARKS. Because of the absence of the chaeta O on head, the presence of 4 chaetae on tubercle (Di+De) of head and 3 chaetae on tubercle De of thoracic terga II–III the new species appears to be the closest to *B. subaurantiaca* Cassagnau et Péja, 1979 and *B. massoudi* Cassagnau, 1968. However, it can be easily distinguished from them by the following features: colour of the body in alive specimens (in *carpatica*: white, in *subaurantiaca* and *massoudi*: orange), number of chaetae on tubercle D1 of th. II–III (in *carpatica* and *subaurantiaca*: 3 chaetae, in *massoudi*: 5 chaetae), number of chaetae on tubercle D1 and L of abd. I–III (in *carpatica* and *subaurantiaca*: 2 and 3 chaetae respectively, in *massoudi*: 3 and 4 chaetae respectively), number of chaetae on tubercle (De+D1) of abd. IV (in *carpatica* and *massoudi*: 4 chaetae, in *subaurantiaca*: 6 chaetae), number of chaetae on tubercle (Di+De+D1) of abd. V (in *carpatica*: 7 chaetae, in *subaurantiaca*: 8 chaetae, in *massoudi*: 8–9 chaetae), presence/absence of inner denticle on claw (in *carpatica* and *massoudi*: absent, in *subaurantiaca*: present).

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